

WORK INSTRUCTION

Title: **Replacement or Inspection or Measurements of Inner Containment Vessel (ICV) Honeycomb Spacers**

Instruction No. **CH.13**

Rev. **0.2**, March 2005

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Approved for Use by: *Michael R. B.* 3/7/2005 Effective Date: March 2005

Applicable Drawings:

- 2077-500SNP (Sheets 3 and 6) - TRUPACT-II Packaging SARP Drawings
- 707-SAR (Sheet 3) - HalfPACT Packaging SARP Drawings

SARP Requirements:

- Spacers are to be replaced if damaged and must be removed prior to the performance of the visual and liquid penetrant inspection requirements of Chapter 8.0, Para. 8.2.1.

Tools Required:

- 2 ICV Lid Stands
- ICV Work Platform
- Outer Containment Assembly (OCA) Work Platform
- OCA Lid Stand
- 8-ft Level
- 2 Tape Measures
- Lower Spacer Lifting Slings
- Step Ladder
- Lift Fixture
- Crane
- Calibrated Torque Wrench with Flat Blade 3/8-in. tip with Screwdriver Socket

Spare Parts Required:

- ☐ Upper Honeycomb Spacer (PN 2077-053A1)
- ☐ Lower Honeycomb Spacer (PN 2077-053A2)

Upper Spacer:

- 6 each, round head screws 1/4-in. x 20 UNC x 3/4-in. long (PN 2077-180-20)

NOTE: Pan head screws may also be used.

- U-type Fasteners (PN 2077-180-23)
- Flat Washer Stainless Steel 5/16-in. nominal (PN 2077-180-6) and/or rubber washers (McMaster #90130A040)

Lower Spacer with round, countersunk holes:

- 6 each, flat head screws 1/4-in. x 20 UNC x 3/4-in. long (PN 2077-180-10)
- U-type Fasteners (PN 2077-180-23)
- Flat Washer Stainless Steel 5/16-in. nominal (PN 2077-180-6) and/or rubber washers (McMaster #90130A040)

Lower Spacer with slotted holes:

- 6 each, round head screws 1/4-in. x 20 UNC x 3/4-in. long (PN 2077-180-20)
- U-type Fasteners (PN 2077-180-23)
- Flat Washer Stainless Steel 5/16-in. nominal (PN 2077-180-6) and/or rubber washers (McMaster #90130A040)

Materials Required:

- Double-sided Adhesive Tape (PN 2077-180-26)
- Denatured Alcohol or equivalent
- Lint-free Rags
- Loctite #222 Thread Locking Compound or Equivalent
- Torque paint

Safety Requirements:

- Safety will be observed in accordance with site requirements.

Prerequisite Conditions:

- The ICV lid with spacer installed must be on a stand.

Instruction Steps:

- 1.0 This work instruction **is not required to be attached** to the Maintenance Record, but may be used as a checklist during performance of maintenance.
- 2.0 This work instruction may be performed with the ICV body installed in the OCV, but will normally be performed with the ICV body in the proper work stand.
- 3.0 The upper and lower spacers may be replaced independently; therefore, sequence of work steps may be performed as conditions allow.

☐ Upper Spacer Removal

- 1.0 Remove the 6 screws and store for possible future use.
- 2.0 Using appropriate lift fixture, raise lid to clear the spacer and place lid on an empty stand.
- 3.0 Inspect the U-type fasteners for thread or other visible damage, and if damaged, discard. Replace fasteners using double-sided tape to hold in place.
- 4.0 Inspect the surface plate of the spacer for damage such, as deep gouges or punctures.
- 5.0 If damage is found, notify CH Packaging Maintenance Engineer (CHME) for resolution.

☐ Upper Spacer Inspection

CAUTION: The spacer weighs nearly 100 lb. Two or more personnel should be used to handle the spacer. Leather gloves should be worn to prevent hand injuries.

- 1.0 Remove the spacer from the stand and place on a flat surface, taking care not to damage the plate.
- 2.0 Inspect for cracked, torn, missing, or bent ICV brackets. **GO TO** WI-CH.17 for repair.
- 3.0 Inspect honeycomb for corrosion or crushing. Notify CHME for resolution.
- 4.0 Inspect screw holes and cutout locations for obvious dents, tears, cracks or other damage. Notify CHME for resolution.

☐ Upper Spacer Installation or Replacement

- 1.0 Place the spacer on an empty ICV lid stand.
- 2.0 Place double-sided tape on U-type fasteners.
- 3.0 Align washer holes with holes in the U-type fasteners and attach with double-sided tape.
- 4.0 Attach fasteners to support brackets.
- 5.0 Return ICV lid to stand and lower into position over spacer, ensuring that the bolt holes in spacer are aligned with the holes in the lid brackets.
- 6.0 Inspect the screws for thread or head damage. If damaged, discard and replace.
- 7.0 Coat threads with Loctite 222 and install screws.
- 8.0 Torque to 10 to 20 lb-in.
- 9.0 Apply continuous bead of torque paint from screw head to top plate of spacer.
- 10.0 Allow torque paint to cure in accordance with manufacturer's instructions.

☐ Lower Spacer Removal

- 1.0 Place ladder in ICV vessel to allow personnel to access the spacer lift attachment points.
- 2.0 Attach the spacer removal device to an overhead crane and lower until aligned.
- 3.0 Attach lifting slings (with the legs 120° apart) to the spacer.
- 4.0 Remove the 6 screws and store for possible future use.
- 5.0 Personnel exit ICV and remove ladder from vessel.

CAUTION: Leather gloves should be worn to prevent hand injury.

- 6.0 Slowly raise the spacer out of the cavity, move to a designated area and place with the surface plate down.

☐ Lower Spacer Inspection

- 1.0 Place the level horizontally across the dome and center so that the measurements can be taken from both ends (Attachment 1, Figure A).
- 2.0 Rotate the level so that both ends are approximately aligned with any two opposing bolt holes.

NOTE: The measurements performed in step 3.0 at both ends of the level shall be exactly the same.

- 3.0 Simultaneously measure both ends from the honeycomb side of the top plate to the bottom edge of the level. (See Attachments 1 and 2).
- 4.0 Record measurement and packaging serial number on Attachment 2.
- 5.0 If the measurement is less than 11-in., notify (CHME) for resolution.
- 6.0 Inspect for cracked, torn, missing, or bent ICV brackets. **GO TO** WI-CH.17 for repair.
- 7.0 Inspect honeycomb for corrosion or crushing. Notify CHME for resolution.
- 8.0 Inspect screw holes and cutout locations for obvious dents, tears, cracks or other damage. Notify CHME for resolution.

☐ Lower Spacer Installation

- 1.0 Place ladder in vessel for personnel access.
- 2.0 Inspect bottom of vessel for moisture or water. If found, remove using absorbent material.
- 3.0 Inspect the U-type fastener for thread or other damage and if damaged, discard and replace using double-sided tape to hold in place.
- 4.0 Place double-sided tape on U-type fasteners.
- 5.0 Align washer holes in U-type fastener.
- 6.0 Attach washers to double-sided tape and attach fasteners to support brackets.
- 7.0 Personnel exit ICV and remove ladder from vessel.
- 8.0 Upend the spacer and attach the removal sling (with the legs 120° apart) to the spacer.
- 9.0 Raise the spacer and lower into the ICV cavity, aligning with the support brackets.
- 10.0 Place ladder in vessel for personnel access.
- 11.0 Inspect the screws for thread or head damage. If damaged, discard and obtain replacements.
- 12.0 Coat screw threads with Loctite 222 and install screws.
- 13.0 Install screws to where there is no detectable gap between screw head and spacer top plate.
- 14.0 Detach the removal slings and remove from vessel.
- 15.0 Personnel exit ICV and remove ladder from vessel.

Verification Requirements:

- Work performed is described on Maintenance Record.
- Work instruction is listed on Maintenance Record.
- Data sheet (Work Instruction CH.13, Attachment 2) is attached to Maintenance Record.

ATTACHMENT 1, FIGURES

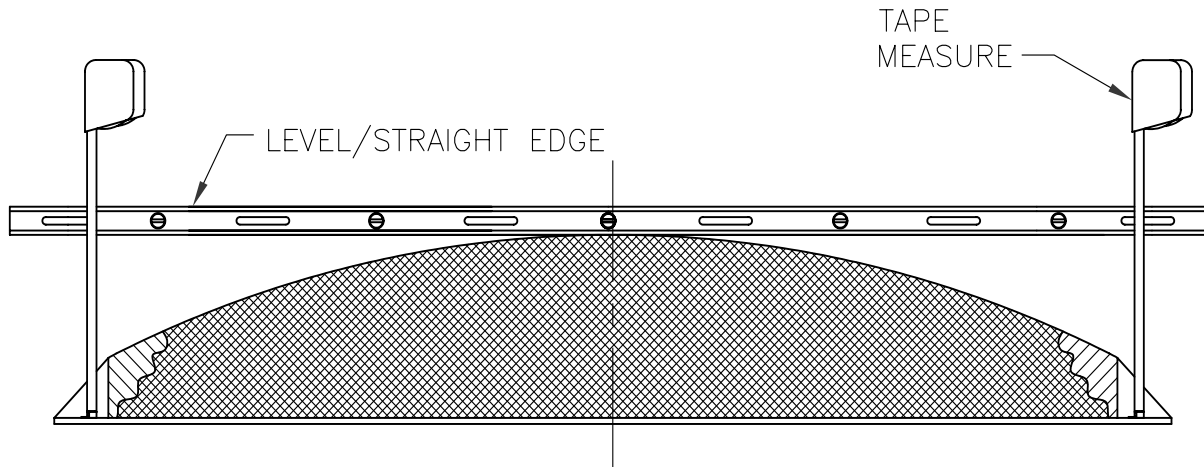


FIGURE A

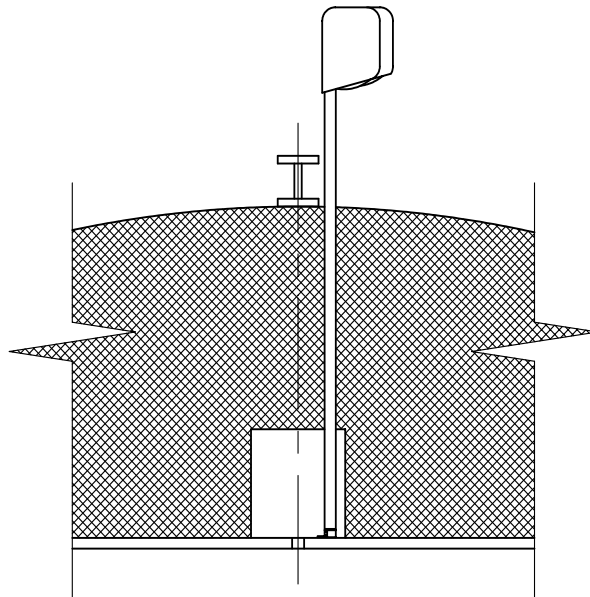
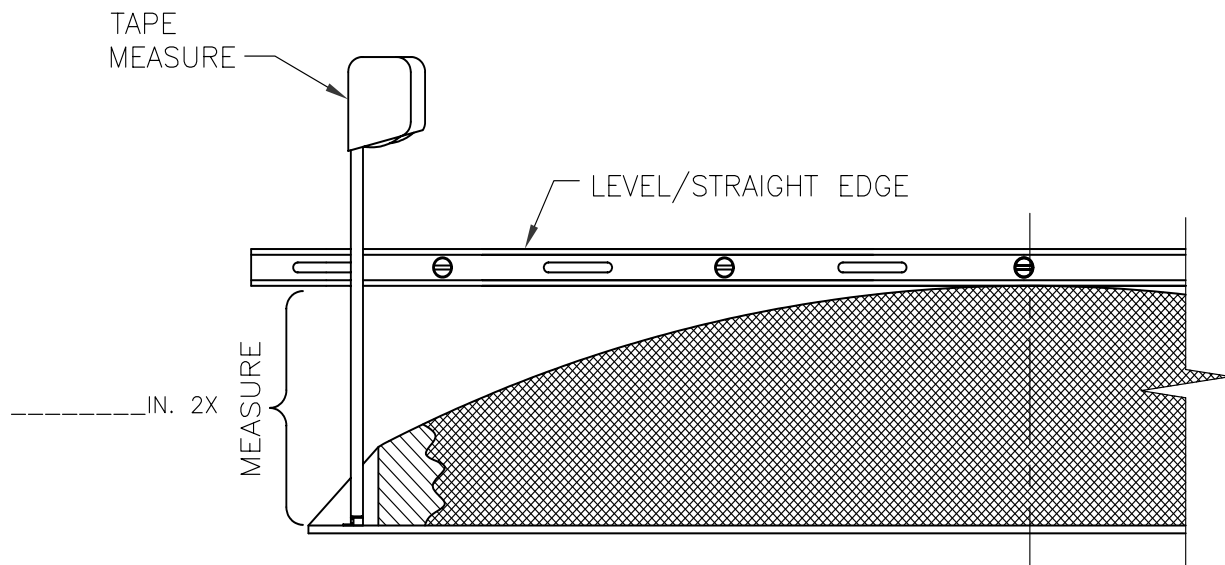


FIGURE B

ATTACHMENT 2, DATA SHEET

LOWER SPACER MEASUREMENTS

IF MEASUREMENT IS LESS THAN 11", NOTIFY THE CH PACKAGING MAINTENANCE ENGINEER (CHME). IF ANY CORROSION OR CRUSHING OF THE HONEYCOMB IS OBSERVED, NOTIFY THE CHME FOR EVALUATION.



PACKAGING SERIAL NUMBER:_____

JOB NUMBER:_____

QA:_____

DATE:_____